

REMARKS

The Office Action of April 21, 2004, has been received and reviewed.

Claims 1-3, 5, and 7-31 remain pending and under consideration in the above-referenced application. Each of claims 1-3, 5, and 7-31 stands rejected.

Reconsideration of the above-referenced application is respectfully requested.

Obviousness-Type Double Patenting Rejection

Each of claims 1-3, 5, and 7-31 stands rejected under the judicially created doctrine of obviousness-type double patenting for reciting subject matter which is unpatentable over that to which claim 6 of U.S. Patent 6,649,444 is directed.

A terminal disclaimer and the appropriate fee are being filed in the above-referenced application, in compliance with 37 C.F.R. § 1.321(b) and (c), to overcome the obviousness-type double patenting rejection, thereby expediting prosecution of the above-referenced application and avoiding further expenses and time delays. The filing of a terminal disclaimer in the above-referenced application should not be construed as acquiescence of the obviousness-type double patenting rejection.

Rejections Under 35 U.S.C. § 103(a)

Claims 1-3, 5, and 7-31 have also been rejected under 35 U.S.C. § 103(a).

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Kikuchi in View of Hashimoto

Claims 1-3, 5, 7-11, 13-22, 24, 25, and 27-31 stand rejected under 35 U.S.C. § 103(a) for being drawn to subject matter which is allegedly unpatentable over the subject matter taught in Japanese patent publication JP 11-40608 of Kikuchi et al. (hereinafter “Kikuchi”), in view of teachings from U.S. Patent 6,410,366 to Hashimoto et al. (hereinafter “Hashimoto”).

Kikuchi, inasmuch as the translation thereof that has been provided by the Office can be understood, teaches semiconductor device assemblies that include support members 6 that are configured to be disposed between a circuit board 5, 10 and another circuit board 2 to which a semiconductor die 1 is secured. Support members 6 may be secured to (*see, e.g.*, paragraph [0041]) or integrally formed with (*see, e.g.*, paragraphs [0073], [0081], and [0082]) either circuit board 2 or circuit board 5, 10.

The teachings of Kikuchi are limited to support structures 6 that include a single layer of material, such as a glass epoxy resin (*see, e.g.*, paragraphs [0026], [0060], [0086]) or another, undescribed material (*see* paragraph [0087]).

While Kikuchi teaches that an adhesive material may be used to secure support structures 6 to circuit board 2, 5, or 10 (paragraph [0041]), Kikuchi does not teach that the adhesive material is part of the support structures 6. Kikuchi also lacks any teaching or suggestion as to the characteristics of the adhesive material (*i.e.*, conductive, dielectric, etc.).

The teachings of Hashimoto are directed to semiconductor device components—chip 10 and substrate 20—that include support bumps 11, 21, respectively, protruding from surfaces thereof. According to Hashimoto, the bumps 11, 21 are preferably formed from an electrically insulating material. Col. 5, lines 41-43; col. 7, lines 5-7. When chip 10 and substrate 20 are assembled with one another, corresponding bumps 11 and 21 may align with one another. Col. 5, lines 53-54.

Independent claim 1 recites a semiconductor device component that includes a substrate with at least one stabilizer protruding from a surface of the substrate. The at least one stabilizer

is positioned between a periphery of the stabilizer-bearing surface of the substrate and each contact pad exposed to that surface. The at least one stabilizer of independent claim 1 includes a plurality of at least partially superimposed, contiguous, mutually adhered layers of the same type of dielectric material.

It is respectfully submitted that the teachings of Kikuchi and Hashimoto do not support a *prima facie* case of obviousness against any of claims 1-3, 5, 7-11, 13-22, 24, 25, or 27-31.

First, it is respectfully submitted that one of ordinary skill in the art would have no reason to expect the teachings of Kikuchi and Hashimoto, when considered in their entireties, to result in the subject matter recited in any of claims 1-3, 5, 7-11, 13-22, 24, 25, or 27-31.

In particular, it is respectfully submitted that one of ordinary skill in the art would have no reason to expect that the result of combining teachings from Kikuchi and Hashimoto would be a semiconductor device component that includes at least one stabilizer with a plurality of at least partially superimposed, contiguous, *mutually adhered* layers” that comprise *the same type of dielectric material*, as recited in independent claims 1 and independent claim 13, as amended and presented herein (emphasis supplied). It is also respectfully submitted that one of ordinary skill in the art would have no reason to expect any combination of teachings from Kikuchi and Hashimoto to successfully result in the semiconductor device components of amended independent claims 25 and 31, both of which require at least one stabilizer that includes “a plurality of adjacent, *mutually adhered regions*” (emphasis supplied) formed from the same type of material (claim 25) or from the same material (claim 31).

The teachings of Hashimoto are directed to structures that include support bumps 11 and 21 on a chip 10 and substrate 20, respectively. Support bumps 11 and 21 may be stacked by stacking chip 10 and substrate 20 relative to one another. The resulting support structure may include two stacked bumps 11 and 21. Nonetheless, Hashimoto does not teach or suggest that such stacked bumps 11 and 21 are “mutually adhered” to one another.

Kikuchi supplies the only teaching for securing bumps 11 and 21 of Hashimoto to one another: the use of an adhesive material, such as that used to secure a stabilizer 6 to a circuit board 2, 5, 10.

If such an adhesive material were used to secure bumps 11 and 21 to one another, the resulting support structure would include an intervening layer of adhesive material. Thus, even if the layers of the resulting support structure could be considered to be “mutually adhered” to one another, they could not be considered to comprise “the same type of dielectric material.”

Therefore, one of ordinary skill in the art would have no reason to expect a combination of teachings from Kikuchi and Hashimoto, as asserted, to successfully result in the subject matter recited in any of independent claims 1, 13, 25, or 31, or claims 2, 3, 5, or 7-11, which depend from claim 1, claims 14-22 or 24, which depend from claim 13, or claims 27-30, which depend from claim 25.

Second, it is respectfully submitted that neither Kikuchi nor Hashimoto, taken either separately or together, teaches or suggests each and every element of any of claims 1-3, 5, 7-11, 13-22, 24, 25, or 27-31.

With respect to independent claim 1, it is respectfully submitted that Kikuchi and Hashimoto, taken individually or collectively, do not teach or suggest a semiconductor device component which includes at least one stabilizer “including a plurality of at least partially superimposed, contiguous, *mutually adhered layers of the same type* of dielectric material.” (Emphasis supplied).

Kikuchi and Hashimoto also lack any teaching or suggestion of a semiconductor device component that includes at least one stabilizer “comprising a plurality of superimposed, contiguous, *mutually adhered layers*, each of which comprises *the same type* of dielectric material,” as required by independent claim 13, as amended and presented herein.

Independent claim 25, as amended and presented herein, is directed to a semiconductor device component that includes at least one nonconductive stabilizer. The at least one nonconductive stabilizer of amended independent claim 25 includes “a plurality of adjacent, *mutually adhered regions comprising the same type of material*.” Again, Kikuchi and Hashimoto, taken either separately or together, do not teach or suggest at least one nonconductive stabilizer with adjacent regions which are mutually adhered to one another and comprise the same type of material.

In addition, Kikuchi and Hashimoto, taken individually or collectively, do not teach or suggest a semiconductor device component that includes at least one stabilizer with “a plurality of adjacent, *mutually adhered regions* formed from *the same material*” (emphasis supplied), as recited in independent claim 31, as amended and presented herein.

Third, because one of ordinary skill in the art would have no reason to expect the asserted combination of referenced teachings to be successful, and since Kikuchi and Hashimoto do not teach or suggest each and every element of any of claims 1-3, 5, 7-11, 13-22, 24, 25, and 27-31, it is respectfully submitted that there would have been no motivation for one of ordinary skill in the art to combine the teachings of Kikuchi and Hashimoto in the manner that has been asserted. In fact, based upon the lack of any expectation that the asserted combination would be successful, it appears that the only source for such motivation could have been the hindsight provided by the disclosure of the above-referenced application.

In view of the foregoing, it is respectfully submitted that a *prima facie* case of obviousness has not been set forth against independent claim 1 or any of amended independent claims 13, 25, or 31. Therefore, it is respectfully submitted that, under 35 U.S.C. § 103(a), each of these claims recite subject matter which is allowable over the teachings of Kikuchi and Hashimoto.

Claims 2, 3, 5, and 7-11 are each allowable, among other reasons, for depending either directly or indirectly from claim 1, which is allowable.

Each of claims 14-22 and 24 is allowable, among other reasons, for depending either directly or indirectly from claim 13, which is allowable.

Claims 27-30 are allowable, among other reasons, for depending either directly or indirectly from claim 25, which is allowable.

Kikuchi, Hashimoto, and Sato

Claims 12 and 23 have been rejected under 35 U.S.C. § 103(a) for being drawn to subject matter which is purportedly unpatentable over teachings from Kikuchi, in view of the subject

matter taught in Hashimoto and, further, in view of teachings from U.S. Patent 6,287,895 to Sato.

Claims 12 and 23 are allowable, among other reasons, for respectively depending from claims 1 and 13, which are allowable.

Kikuchi, Hashimoto, and Kuniaki

Claim 26 stands rejected under 35 U.S.C. for reciting subject matter which is assertedly unpatentable over the teachings of Kikuchi, in view of teachings from Hashimoto and, further, in view of the subject matter taught in Japanese patent publication JP 10-189653 of Kuniaki et al. (hereinafter "Kuniaki").

Claim 26 is allowable, among other reasons, for depending directly from claim 25, which is allowable.

For these reasons, it is respectfully requested that the 35 U.S.C. § 103(a) rejections of claims 1-3, 5, and 7-31 be withdrawn.

ENTRY OF AMENDMENTS

It is respectfully submitted that the claim amendments that have been proposed herein should be entered. None of the proposed claim amendments introduces new matter into the above-referenced application. The subject matter recited in each claim, as amended has already been searched. Further, in view of the remarks presented herein, it is believed that each of the proposed claim amendments places the claims in condition for allowance.

In the event that the proposed claim amendments are not entered, it is respectfully requested that they be entered when a notice of appeal is filed in the above-referenced application.

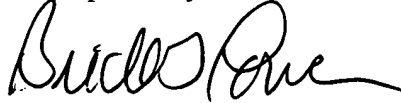
CONCLUSION

It is respectfully submitted that each of claims 1-3, 5, and 7-31 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that

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the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Brick G. Power". The signature is fluid and cursive, with a long horizontal stroke at the end.

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